



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/606,731

06/26/2003

Kourosh Soroushian

02-6421 1496.00304

5840

22501 7590 09/01/2009

CHRISTOPHER P MAIORANA, PC

LSI Corporation

24840 HARPER

SUITE 100

ST CLAIR SHORES, MI 48080

EXAMINER

HALLENBECK-HUBER, JEREMIAH CHARLES

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

09/01/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/606,731	Applicant(s) SOROUSHIAN, KOUROSH	
	Examiner JEREMIAH C. HUBER	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

Claims 1-9 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent¹ and recent Federal Circuit decisions² indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example the bitstream decoding method including steps of receiving, generating, and storing is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine. The Applicant has provided no explicit and deliberate definitions of receiving, generating or storing and the claim language itself is sufficiently broad to read on or more people receiving printouts of bitstream data comprising encoded macroblocks, manually generating field headers in response to a frame header, storing the field headers and macroblock rows either mentally or in print, and generating a second encoded bitstream in print that is compliant with an MPEG-2 decoder.

¹ *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

² *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gryskiewicz et al (6392712, hereafter Gry) in view of Boyce et al (5592299) and in further view of Kim et al (5926573) or in the alternative over Gry in view of Kim and Boyce and in further view of the applicant's admitted prior art (hereafter AAPA).

In regard to claim 1 Gry discloses a method and apparatus for processing a bitstream including:

receiving a first bitstream comprised of encoded frames (Gry Fig. 1 102, 104, 120 col. 1 lines 21-22), generating first and second field pictures in response to the input bitstream and (Gry col. 3 lines 18-38), and generating a second bitstream including the first and second field pictures (Gry Fig. 2 note to transmitter 106 and col. 3 lines 38-44); and

first and second field buffers (Gry fig. 1 note 125a-b). Boyce further discloses selecting alternate macroblock rows to generate a field (Boyce Fig. 3 and col. 8 lines 1-35).

It is noted that Gry does not disclose details of alternating macroblock rows. However, Boyce discloses a method and apparatus for processing a bitstream (Boyce Figs. 1E, 2 and col. 1 line 46 col. 2 line 50) including:

receiving a first bitstream comprised of encoded frame pictures, including intra coded frames, with alternating macroblock rows, with each row containing a plurality of vertical lines from a single respective field (Boyce Figs. 1E and 2 and col. 2 lines 41-50 and col. 5 lines 37-49 note field DCT coded macroblock in Fig. 1E note each block 22-25 comprises a plurality of vertical lines, e.g. 8, 8 pixel vertical lines, from a single field, also note MPEG digital video inherently includes intra coded frames, and frame headers);

generating first and second field pictures in response to the bitstream (Boyce Figs. 2 and 3 and col. 7 lines 5-15, note first and second fields are generated in response to received bitstream), wherein the first field picture comprises macroblock rows containing the data for the plurality of vertical lines from a first field of the frame picture wherein the encoded vertical data of altering macroblock rows is a copy of the encoded data for the plurality of vertical lines contained in a corresponding macroblock row (Boyce Fig. 3 and col. 7 line 51 to col. 8 line 35 note field picture is composed of alternating block rows of the frame picture, also note col. 8 lines 30-35 each block, i.e. a and b, may be placed into a field macroblock with all DC and AC coefficients, thus the encoded vertical lines corresponding to a single field are copied).

generating a second bitstream including the first and second field pictures such that the second bitstream is decodable as interlaced field pictures using an MPEG-2

compliant decoder (Boyce col. 6 lines 61-63 note output is MPEG compliant pars of field pictures further note MPEG output is inherently encoded).

Boyce further discloses the ability to generate either upper or lower (odd or even) fields (Boyce Fig. 3A&B) and generating picture and slice headers to maintain MPEG compliance (Boyce col. 11 line 56 to col. 12 line 7 note MPEG compliance requires an indication of top or bottom field in a field header).

It is further noted that neither Gry nor Boyce discloses copying and modifying header information. However Kim discloses a an MPEG format conversion method in which various headers are modified and copied into new bitstreams (Kim Fig. 1 and col. 5 line 44 to col. 6 line 63).

Therefore, it was well known in the art at the time of the invention to generate first and second fields containing video data from frames as disclosed by Gry. It was also well known in the art at the time of the invention to generate single encoded fields in response to encoded frames where each field is comprised of macroblock rows containing data of the original frame, and output a second bitstream comprised of field pictures that is decodable using an MPEG-2 complaint decoder as disclosed by Boyce. It was further well known to copy and modify various headers into new bitstreams during format conversion as disclosed by Kim. The examiner does not believe that one of ordinary skill in the art would have had any difficulty in combining the generation of two fields as taught by Gry with the compressed frame to field conversion method of Boyce and copying and modification of headers as taught by Kim. Therefore the applicant's invention merely represents a combination of prior art elements according to known

methods to achieve predictable results. In such a combination both inventions would perform as they did separately. Namely, the method Boyce would continue to operate to generate fields from frames, the method of Gry would continue to generate two data fields in response to input frames, and the method of Kim would continue to copy and modify header data during format conversion. One of ordinary skill in the art would further have found such results to be predictable because generating two data fields in response to frames was well known as taught by Gry. Boyce teaches a method of generating a single data field from a frame. Kim teaches header copying and modification during format conversion. Therefore the result of generating two fields from a frame using the method of Boyce, and deriving the headers of those fields via copying and modification as taught by Kim would have been predictable.

Boyce further discloses the ability to operate on intra coded images in the MPEG format (Boyce col. 5 lines 38-49 and col. 6 lines 27-37;). It is noted that neither Gry nor Boyce explicitly disclose operation relating to an intra-only bitstream. However, such a bitstream is inherent to the MPEG standard as disclosed by the applicant's prior art (Spec. p. 3 lines 9-20 note bitstream can be formed solely of intra pictures).

Alternatively if one were to assume in arguendo, that Boyce did not disclose copying the vertical lines of macroblock rows as claimed, the claim would still be obvious in view of the AAPA. Boyce generally discloses an image structure where macroblocks may be either a frame DCT or field DCT type, where a frame DCT type comprises interlaced blocks, whereas a field DCT type comprises 8x8 blocks corresponding to individual fields. The AAPA discloses a further frame structure in the

MPEG-2 standard wherein larger 16x16 macroblocks may correspond to individual fields as opposed to the blocks of Boyce. It would therefore be considered obvious that one of ordinary skill in the art at the time of the invention would apply the field generation method of Gry in view of Boyce to the 16x16 field macroblock structure disclosed by the AAPA in order to gain compliance with a greater variety of image structures. Incorporation of the AAPA structure would further reduce the number of frame to field calculations necessary because by operating on larger image blocks the number of operations assigning a block to a particular field would be reduced by a factor of 4.

In regard to claims 2-3 refer to the statements made in the rejection of claim 1 above. Gry further discloses first and second field buffers (Gry fig. 1 note 125a-b). Boyce further discloses selecting alternate macroblock rows to generate a field (Boyce Fig. 3 and col. 8 lines 1-35). Boyce further discloses generating picture and slice headers to maintain MPEG compliance (Boyce col. 11 line 56 to col. 12 line 7 note MPEG compliance requires an indication of top or bottom field in a field header). It is further noted that neither Gry nor Boyce discloses copying and modifying header information. However Kim discloses a an MPEG format conversion method in which various headers are modified and copied into new bitstreams (Kim Fig. 1 and col. 5 line 44 to col. 6 line 63). It is therefore considered obvious to include header copying and modification as taught by Kim in the invention of Gry and Boyce in order to speed processing.

In regard to claim 4 refer to the statements made in the rejection of claims 2-3 above. Boyce further discloses adjusting slice numbers (Boyce col. 11 lines 60 to 67 note correct slice_vertical_position values).

In regard to claim 5-6 refer to the statements made in the rejection of claim 1 above. Gry further discloses writing first and second fields consecutively into a second bitstream (Gry Fig. 2 note odd and even fields).

In regard to claims 7-8 refer to the statements made in the rejection of claim 1 above. Boyce further discloses storing a field based MPEG encoded bitstream in order to perform trick play (col. 12 lines 21-38). It is therefore inherent that the recorded bitstream of Boyce is provided to a decoder configured to support a field picture in order to perform trick play.

In regard to claim 9 refer to the statements made in the rejection of claim 7 above. Gry further discloses presenting field lines on a display in response to an input bitstream (Gry col. 9 lines 11-17), and further that the display can be a television (Gry col. 4 lines 1-3). Kim further discloses that decoding encoded bitstreams for display was well known in the art at the time of the invention (Kim generally col. 1 line 32 to col. 2 line 62).

In regard to claims 10-20 refer to the statements made in the rejection of claims 1-9 above.

In regard to claims 21-22 refer to the statements made in the rejection of claim 16 above. Kim further discloses writing a sequence header from a first bit stream into a

second bitstream, and further discloses modifying portions of the sequence header prior to writing (Kim fig. 1 and col. 5 line 44 to col. 6 line 63 particularly col. 6 lines 12-29).

Response to Arguments

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

In the Remarks filed 6/2/2009 the applicant essentially repeats the arguments previously submitted in the Remarks filed 11/26/2008, which were responded to in the Non-Final Rejection dated 3/3/2009.

The applicant further asserts that the previous action dated 3/3/2009 was incomplete because examiner failed to consider the limitation "wherein the encoded data for a plurality of vertical lines contained in each macroblock row is unchanged", and that the instant action should be made Non-Final as a result. The examiner disagrees. The limitation was, in fact, considered and addressed in the previous action on lines 5-9 of the 4th paragraph of page 5. Thus, this action will not be made Non-Final on the basis of the incompleteness of the last action. However, the instant action will be made Non-Final because it includes a rejection under 35 U.S.C. 101, which raises new grounds of rejection not necessitated by the applicants amendment.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEREMIAH C. HUBER whose telephone number is (571)272-5248. The examiner can normally be reached on Mon-Fri 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremiah C Huber
Examiner
Art Unit 2621

/Jeremiah C Huber/
Examiner, Art Unit 2621

Application/Control Number: 10/606,731
Art Unit: 2621

Page 11

/Dave Czekaj/
Primary Examiner, Art Unit 2621